

Amendment and Response

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Serial No.: 10/052,032

Confirmation No.: 1581

Filed: 16 January 2002

For: PRESSURE SENSITIVE ADHESIVES HAVING QUATERNARY AMMONIUM FUNCTIONALITY,
ARTICLES, AND METHODS

Amendments to the Claims

This listing of claims replaces all prior versions, and listings, of claims in the above-identified application:

1. (Original) A pressure sensitive adhesive composition comprising a pressure sensitive adhesive polymer comprising:

at least one copolymerized monoethylenically unsaturated (meth)acrylic acid ester monomer, wherein the (meth)acrylic acid ester monomer, when homopolymerized, has a Tg of less than about 25°C; and

at least one copolymerized monoethylenically unsaturated reinforcing monomer, wherein the reinforcing monomer, when homopolymerized, has a Tg of at least about 25°C;

wherein the pressure sensitive adhesive polymer includes covalently bonded quaternary ammonium functionality.

2. (Original) The pressure sensitive adhesive composition of claim 1 wherein the pressure sensitive adhesive polymer further comprises at least one copolymerized monoethylenically unsaturated poly(alkylene oxide) monomer.

3. (Original) The pressure sensitive adhesive composition of claim 2 wherein the copolymerized monoethylenically unsaturated poly(alkylene oxide) monomer is a poly(alkylene oxide) (meth)acrylic acid ester monomer.

4. (Original) The pressure sensitive adhesive composition of claim 1 further comprising at least one nonreactive poly(alkylene oxide) polymer.

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5. (Original) The pressure sensitive composition of claim 4 wherein the nonreactive poly(alkylene oxide) polymer comprises copolymerized monomers selected from the group consisting of ethylene oxide, propylene oxide, butylene oxide, trimethylene oxide, tetramethylene oxide, their corresponding glycols, and mixtures thereof.
6. (Original) The pressure sensitive adhesive composition of claim 1 wherein the pressure sensitive adhesive polymer has a Tg of no greater than about 10°C.
7. (Original) The pressure sensitive adhesive composition of claim 6 wherein the pressure sensitive adhesive polymer has a Tg of no greater than about -10°C.
8. (Original) The pressure sensitive adhesive composition of claim 7 wherein the pressure sensitive adhesive polymer has a Tg of no greater than about -20°C.
9. (Original) The pressure sensitive adhesive composition of claim 1 which adheres to wet skin.
10. (Original) The pressure sensitive adhesive composition of claim 1 wherein the pressure sensitive adhesive polymer is inherently antimicrobial.
11. (Original) The pressure sensitive adhesive composition of claim 1 further comprising at least one antimicrobial agent.
12. (Original) The pressure sensitive adhesive composition of claim 11 wherein the antimicrobial agent is present in an amount of at least about 0.05 wt-%, based on the total weight of the pressure sensitive adhesive composition.

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13. (Original) The pressure sensitive adhesive composition of claim 11 wherein the antimicrobial agent is selected from the group consisting of iodine, complexed forms of iodine, chlorhexidine salts, parachlorometaxylenol, triclosan, hexachlorophene, fatty acid esters, phenols, surfactants having a C12-C22 hydrophobe and a quaternary ammonium group, quaternary amines, quaternary silanes, hydrogen peroxide, silver, silver salts, silver oxide, silver sulfadiazine, and combinations thereof.
14. (Original) The pressure sensitive adhesive composition of claim 13 wherein the antimicrobial agent is a chlorhexidine salt.
15. (Original) The pressure sensitive adhesive composition of claim 1 wherein the monoethylenically unsaturated reinforcing monomer is a quaternary ammonium monomer.
16. (Withdrawn) A pressure sensitive adhesive composition comprising a pressure sensitive adhesive polymer comprising:
- at least one copolymerized monoethylenically unsaturated (meth)acrylic acid ester monomer, wherein the (meth)acrylic acid ester monomer, when homopolymerized, has a Tg of less than about 25°C; and
 - at least one copolymerized quaternary ammonium monomer, wherein the quaternary ammonium monomer, when homopolymerized, has a Tg of at least about 25°C.
17. (Withdrawn) A pressure sensitive adhesive composition comprising a pressure sensitive adhesive polymer comprising:

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at least one copolymerized monoethylenically unsaturated (meth)acrylic acid ester monomer, wherein the (meth)acrylic acid ester monomer, when homopolymerized, has a Tg of less than about 25°C;

at least one copolymerized quaternary ammonium monomer, wherein the quaternary ammonium monomer, when homopolymerized, has a Tg of at least about 25°C; and

at least one copolymerized poly(alkylene oxide) (meth)acrylic acid ester monomer.

18. (Withdrawn) The pressure sensitive adhesive composition of claim 17 further comprising at least one nonreactive poly(alkylene oxide) polymer.

19. (Withdrawn) The pressure sensitive adhesive composition of claim 17 wherein the pressure sensitive adhesive is inherently antimicrobial.

20. (Withdrawn) A pressure sensitive adhesive composition comprising:

at least one antimicrobial agent; and

a pressure sensitive adhesive polymer comprising:

at least one copolymerized monoethylenically unsaturated (meth)acrylic acid ester monomer, wherein the (meth)acrylic acid ester monomer, when homopolymerized, has a Tg of less than about 25°C;

at least one copolymerized quaternary ammonium monomer, wherein the quaternary ammonium monomer, when homopolymerized, has a Tg of at least about 25°C; and

at least one copolymerized poly(alkylene oxide) (meth)acrylic acid ester monomer.

21. (Withdrawn) A pressure sensitive adhesive composition comprising:

at least one nonreactive poly(alkylene oxide) polymer; and

a pressure sensitive adhesive polymer comprising:

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at least one copolymerized monoethylenically unsaturated (meth)acrylic acid ester monomer, wherein the (meth)acrylic acid ester monomer, when homopolymerized, has a Tg of less than about 25°C; and

at least one copolymerized quaternary ammonium monomer, wherein the quaternary ammonium monomer, when homopolymerized, has a Tg of at least about 25°C.

22. (Withdrawn) The pressure sensitive adhesive composition of claim 21 wherein the pressure sensitive adhesive polymer further comprises at least one copolymerized poly(alkylene oxide) (meth)acrylic acid ester monomer.

23. (Withdrawn) The pressure sensitive adhesive composition of claim 21 wherein the pressure sensitive adhesive polymer is inherently antimicrobial.

24. (Withdrawn) A pressure sensitive adhesive composition comprising:

at least one antimicrobial agent;

at least one nonreactive poly(alkylene oxide) polymer; and

a pressure sensitive adhesive polymer comprising:

at least one copolymerized monoethylenically unsaturated (meth)acrylic acid ester monomer, wherein the (meth)acrylic acid ester monomer, when homopolymerized, has a Tg of less than about 25°C; and

at least one copolymerized quaternary ammonium monomer, wherein the quaternary ammonium monomer, when homopolymerized, has a Tg of at least about 25°C.

25. (Original) A pressure sensitive adhesive composition comprising a pressure sensitive adhesive polymer comprising:

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at least one copolymerized monoethylenically unsaturated (meth)acrylic acid ester monomer, wherein the (meth)acrylic acid ester monomer, when homopolymerized, has a Tg of less than about 25°C; and

at least one copolymerized monoethylenically unsaturated reinforcing monomer, wherein the reinforcing monomer, when homopolymerized, has a Tg of at least about 25°C;

wherein the pressure sensitive adhesive polymer includes covalently bonded quaternary ammonium functionality and no more than about 5 weight percent of copolymerized acidic monomers, based on the total weight of pressure sensitive adhesive polymer.

26. (Withdrawn) A pressure sensitive adhesive composition comprising a chlorhexidine-compatible pressure sensitive adhesive polymer comprising:

at least one copolymerized monoethylenically unsaturated (meth)acrylic acid ester monomer, wherein the (meth)acrylic acid ester monomer, when homopolymerized, has a Tg of less than about 25°C; and

at least one copolymerized monoethylenically unsaturated reinforcing monomer, wherein the reinforcing monomer, when homopolymerized, has a Tg of at least about 25°C;

wherein the pressure sensitive adhesive polymer includes covalently bonded quaternary ammonium functionality.

27. (Original) An article comprising a backing and the pressure sensitive adhesive composition of claim 1 on at least a portion of a surface thereof.

28. (Original) The article of claim 27 which adheres to wet skin.

29. (Original) The article of claim 28 which has an initial wet skin adhesion of at least about 0.8 N/dm.

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30. (Original) The article of claim 29 which has an initial wet skin adhesion of at least about 1.6 N/dm.
31. (Original) The article of claim 28 which has an initial dry skin adhesion of at least about 0.8 N/dm.
32. (Original) The article of claim 28 which has an initial wet skin adhesion that is at least about 65% of the initial dry skin adhesion.
33. (Original) The article of claim 27 which is a medical article.
34. (Withdrawn) An article comprising a backing and the pressure sensitive adhesive composition of claim 16 disposed on at least a portion of a surface thereof.
35. (Withdrawn) An article comprising a backing and the pressure sensitive adhesive composition of claim 17 disposed on at least a portion of a surface thereof.
36. (Withdrawn) An article comprising a backing and the pressure sensitive adhesive composition of claim 20 disposed on at least a portion of a surface thereof.
37. (Withdrawn) An article comprising a backing and the pressure sensitive adhesive composition of claim 21 disposed on at least a portion of a surface thereof.
38. (Withdrawn) An article comprising a backing and the pressure sensitive adhesive composition of claim 24 disposed on at least a portion of a surface thereof.

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39. (Withdrawn) An article comprising a backing and the pressure sensitive adhesive composition of claim 25 disposed on at least a portion of a surface thereof.
40. (Withdrawn) An article comprising a backing and the pressure sensitive adhesive composition of claim 26 disposed on at least a portion of a surface thereof.
41. (Withdrawn) A method of making a pressure sensitive adhesive composition, the method comprising combining under conditions effective to cause polymerization:
- at least one monoethylenically unsaturated (meth)acrylic acid ester monomer, which when homopolymerized, has a Tg of less than about 25°C;
 - at least one quaternary ammonium monomer, wherein the quaternary ammonium monomer, when homopolymerized, has a Tg of at least about 25°C; and
 - optionally at least one monoethylenically unsaturated poly(alkylene oxide) monomer.
42. (Withdrawn) The method of claim 41 wherein the monomers are copolymerized prior to the addition of at least one nonreactive poly(alkylene oxide) polymer.
43. (Withdrawn) The method of claim 41 wherein the monomers are copolymerized prior to the addition of at least one antimicrobial agent.
44. (Original) A method of using an adhesive article, the method comprising:
- providing an adhesive article comprising a backing and the pressure sensitive adhesive composition of claim 1 disposed on at least a portion of a surface thereof; and
 - adhering the adhesive article to skin.

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45. (Withdrawn) A method of using an adhesive article, the method comprising:
providing an adhesive article comprising a backing and the pressure sensitive adhesive composition of claim 16 disposed on at least a portion of a surface thereof; and
adhering the adhesive article to skin.
46. (Withdrawn) A method of using an adhesive article, the method comprising:
providing an adhesive article comprising a backing and the pressure sensitive adhesive composition of claim 17 disposed on at least a portion of a surface thereof; and
adhering the adhesive article to skin.
47. (Withdrawn) A method of using an adhesive article, the method comprising:
providing an adhesive article comprising a backing and the pressure sensitive adhesive composition of claim 20 disposed on at least a portion of a surface thereof; and
adhering the adhesive article to skin.
48. (Withdrawn) A method of using an adhesive article, the method comprising:
providing an adhesive article comprising a backing and the pressure sensitive adhesive composition of claim 21 disposed on at least a portion of a surface thereof; and
adhering the adhesive article to skin.
49. (Withdrawn) A method of using an adhesive article, the method comprising:
providing an adhesive article comprising a backing and the pressure sensitive adhesive composition of claim 24 disposed on at least a portion of a surface thereof; and
adhering the adhesive article to skin.
50. (Original) A method of using an adhesive article, the method comprising:

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providing an adhesive article comprising a backing and the pressure sensitive adhesive composition of claim 25 disposed on at least a portion of a surface thereof; and
adhering the adhesive article to skin.

51. (Withdrawn) A method of using an adhesive article, the method comprising:
providing an adhesive article comprising a backing and the pressure sensitive adhesive composition of claim 26 disposed on at least a portion of a surface thereon; and
adhering the adhesive article to skin.